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FLORA OF NORTH AMERICA.

ILLUSTRATED BY

ORIGINAL COLOURED FIGURES.



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SKERRETT, LOCUST STREET,
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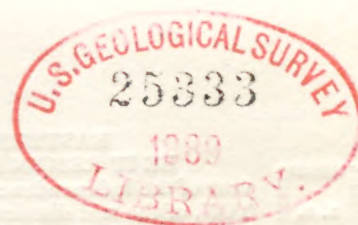
DRAWN FROM NATURE.

BY WILLIAM P. C. ^VBARTON, M. D.

U. S. N.

PROFESSOR OF BOTANY IN THE UNIVERSITY OF PENNSYLVANIA.

VOLUME III.



PHILADELPHIA:

H. C. CAREY & I. LEA—CHESNUT STREET.

1823.

EASTERN DISTRICT OF PENNSYLVANIA, TO WIT:

BE IT REMEMBERED, That on the thirty-first day of December, in the forty-eighth year of the Independence of the United States of America, A. D. 1823, WILLIAM P. C. BARTON, of the said district, hath deposited in this office the title of a Book, the right whereof he claims as Author in the words following, to wit: "A Flora of North America. Illustrated by coloured figures, drawn from Nature. By William P. C. Barton, M. D. U. S. N. Professor of Botany in the University of Pennsylvania. Volume III." In conformity to the Act of the Congress of the United States, intituled, "An Act for the Encouragement of Learning, by securing the copies of Maps, Charts, and Books, to the Authors and Proprietors of such copies during the times therein mentioned."—And also to the Act, entitled, "An Act supplementary to an Act, entitled 'An Act for the Encouragement of Learning, by securing the copies of Maps, Charts, and Books, to the Authors and Proprietors of such copies during the times therein mentioned,' and extending the benefits thereof to the Arts of designing, engraving, and etching historical and other Prints."

D. CALDWELL, Clerk of the Eastern District of Pennsylvania.

L. S.

TO THE HONOURABLE
SAMUEL L. SOUTHARD,
SECRETARY OF THE NAVY
OF THE
UNITED STATES.

MY DEAR SIR,

MY official relation to you as an officer of the service over which you have been lately called to preside, would seem to render it a very proper testimony of my respect, to inscribe any of my literary labours to you. But, if this official connexion certainly warrants, as an act of courtesy to my directing officer, this dedication, other considerations of a personal nature present a ten-fold more powerful inducement, and add a private and real gratification, to an act of public respect.

Associated as we have been, in very early life, by the endearing ties of scholars of the same institution, where an early intimacy with each others characters, can be traced along with the delightful associations of scholastic restraint and pastimes, we have found our-

selves, in older years, in a near relationship by official duties. Need I say how much gratification I have had, in meeting, at so young a period of his life, in the enjoyment of that reward which one of the highest stations of his country has bestowed on him—one who gave such early presage of talents and worth. If any thing could add to the pleasure this public avowal affords me, it is my belief that our numerous collegiate associates in this city, who take delight in the success of the meritorious alumni of Nassau-Hall, can but read in it their own sentiments. I am happy to add, that a promiscuous association with all ranks of naval officers, has recently afforded me the opportunity of learning, that the high expectations which have been conceived of the present incumbent of their department, have, by all who have had occasion through personal or other intercourse, to become acquainted, been most fully realized.

Among those who will ever be most attached, allow me to place myself, with the assurance, that the high esteem which youthful intimacy engendered, is enhanced by my belief in the justness, energy, and courtesy, with which you will henceforth conduct, as you already have conducted the high affairs of your important trust.

Though justice and energy are indispensable to the nation, and belong to a wise dispensation of that power which your elevated department demands, courtesy is necessary and due to a body of cavaliers, to bind them to you by the paternal and protecting bands they

are desirous of feeling. Where there is justice and urbanity in the discharge of great public trusts, like that our chief magistrate has reposed in you, entire satisfaction must result. Hence I am emboldened to congratulate the heroic navy of our country on the elevation to their councils and direction, of a man of genuine talents, possessing a high sense of one, and modestly practising the other.

With these sentiments permit me to prefix your name to this volume of my Flora of North America, and avail myself of this opportunity of excusing myself for having put this dedication to press, without your knowledge or consent.

WILLIAM P. C. BARTON.

Philadelphia, December 31st, 1823.

ADVERTISEMENT.

IT was the intention of the Author, as stated in the Advertisement prefixed to Vol. I. to add the tints of Werner's nomenclature of colours to Vol. II. Upon repeated experiments with the tints, it was found that the best water colours produced in their combinations, fading and evanescent tints—and the Author was acquainted with no other mode of colouring them. He believes the tints of Werner's Book to be died by mineral solutions, and afterwards they are evidently pasted in squares, opposite to the columns of names. Hence it was impossible for him to add the tints, which he intended to do under the idea that they were produced by the common colours in use.

TABLE LXXI.

CLETHRA ACUMINATA.

POINTED-LEAVED CLETHRA.

Decandria Monogynia, Linn.

Ericæ, Juss.

GENERIC CHARACTER.

Calix 5-parted, persistent. *Petals* 5. *Style* persistent. *Stigma* short and trifid.
Capsule 3-celled, 3-valved, enclosed by the calix.

SPECIFIC CHARACTER.

Leaves oval, acuminate, somewhat obtuse at base, serrate, every where smooth, nearly glaucous beneath ; racemes spiked, sub-solitary, bracteated, invested with a white tomentum. *Mich. and Pursh.*

SYNONYM.

CLETHRA montana, Bartram's Catalogue.

A VERY large shrub, growing, according to Pursh, to "the size of a tree." Whole bark of an ash-grey, much cut by transverse ridges, the small branches being reddish. Leaves large, nearly oval, acuminate, rather cordate, obtuse at base, finely serrated and smooth, inclining to be glaucous beneath. Costa and ribs very conspicuous. Flowers cream-white, borne in long, large, erect, and nutant racemes. Corolla tubulous, contracted at the apex. Petals lanceolate, acute, bracteated. Base of calices, peduncles, and whole spike invested with a dense, cream-white tomentum. Style persistent. Grows on the high mountains of Carolina; flowering in July and August.

The genus *Clethra* contains five North American species, two or three of which are ambiguous. The finest of these species is the *Clethra alnifolia*, on account of the delicious and penetrating odour of its flowers, which is often perceptible at a very considerable distance from the spot where the shrub grows. The *alnifolia* is the most common species in the United States, and as it is readily procured and very hardy, it is surprising it is not generally cultivated. The present species resembles it so closely, that to a common observer the absence of that fine fragrance, for which the *alnifolia* is remarkable, would alone distinguish it. The leaves, however, are much larger, and broader at the base than the common species, and the whole shrub of a much greater size, and seldom flowering under a stature of six or eight feet, while the sweet-smelling *Clethra* flowers in the bogs of Jersey, at the height of two feet. The present shrub forms a large

Clethra acuminata.

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showy bush for borders, and by its numerous and long continuing racemes of white flowers, forms, when interspersed with other shrubbery, an ornamental plant.

The table represents a flowering portion of its natural size.

TABLE LXXII.

DENTARIA LACINIATA.

JAGGED-LEAVED TOOTH-WORT.

Tetradynamia Siliquosa, Linn.

Cruciferæ, Juss.

GENERIC CHARACTER.

Siliques springing open elastically, and the valves “nerveless” and revolute. *Dissepiment* partly fungose. *Stigma* emarginate. *Calix* longitudinally connivent.

SPECIFIC CHARACTER.

Leaves thrice ternate; folioles tripartite, linear-oblong, cut-dentate; roots tuberous, moniliform. *Willd.*

SYNONYM.

DENTARIA concatenata, Mich.

PLANT from nine inches to a foot and a half high. Root perennial, consisting of oblong, whitish tubers, tapering to an obtuse apex at



EUPHORBIA MACULATA

either end, varying greatly in number, being often only two or three, while at other times many are found catenated by numerous, small, darker coloured fibres. Hence the specific name by which Michaux designated this species. Stem bifoliate, cylindrical, greenish-yellow. Leaves three times ternate, laciniated, consisting of three-parted folioles; the laciniae oblong-linear, smooth on both sides; costa conspicuous. Flowers pedunculated, borne in a cluster without bracts or bracteiform scales; they are of a pale peach-blossom-red colour. Petals four, obtuse, spathulate. Grows on the sides of rich shady woods, and in elevated situations screened from the sun, where the soil consists principally of rich mould made up of decayed vegetable matter, from one end of the United States to the other. Flowers in May and June.

The genus *Dentaria* or Tooth-wort takes its name from the resemblance of the tuberous roots of the whole genus to teeth. The known North American species do not exceed four in number. Pursh only enumerates three. I have, however, seen mutilated specimens from Kentucky, of a fourth species. Like most of the cruciform plants, the different species possess in common, a portion of that peculiar pungent property known in mustard, pepper-grass, and horse-radish. The roots of the *Dentaria diphylla*, a species allied to this one, found abundantly in beach woods on the high mountains of the western country, are used by the inhabitants instead of mustard. It is known by the name Pepper-root. The flowers of the present species are never purple as stated by Pursh, but a deli-

cate blossom-red, inclining to white ; indeed, plants are frequently found with entirely white flowers. In the vicinity of this city *Dentaria laciniata* grows abundantly along the high banks of the Schuylkill above the falls, in company with the species called Pepper-root, and on the high banks of the Wissahickon creek.

From the trials I have made with these two species, it appears to me, they do not bear transplanting into a garden soil—at least they require much care, and an artificial imitation of their native mould, to ensure their growth and vigour. They do not increase in size or improve in colour by any attention in their culture to which I have subjected them.

Fig. 1. Represents the top of the plant of its natural size, cut asunder from

2. The root.

3. A flower.

4. Calix, with stamens and pistil.



COREOPSIS VERTICILLATA.

TABLE LXXIII.

COREOPSIS VERTICILLATA.

WHORLED-LEAVED COREOPSIS.

Syngenesia Frustranæ, Linn.

Corymbiferæ, Juss.

GENERIC CHARACTER.

Calix double, both many-leaved, (8—12,) interior equal, sub-coriaceous and coloured. *Receptacle* paleaceous, scales flat. *Seed* compressed, emarginate, bidentate; dentures rarely awned.

SPECIFIC CHARACTER.

Leaves verticillated, pinnated by three's or five's; pinnæ linear, 3-parted, and indented; disk discoloured. *Willd.*

Root perennial, fibrous. Plant from two to three feet high, sometimes taller in luxuriant soils. Stem erect, leaves pinnated, in whorls of three, five, and often opposite in pairs, particularly towards the summit; the segments linear, from one and a half to two inches long. Flowers handsome, rays yellow, with dark sienna disk. Grows on high hills and mountainous lands in dry soil, from Maryland to Carolina, and probably will be found further south. It delights in the exposed borders of dry hilly woods; flowering from July till October.

The genus *Coreopsis* affords some of the most elegant of our summer and autumnal flowers—several species have already been figured in this work. The present one is confined exclusively to states southern of Pennsylvania. Though I have met with it near the borders of this state, I have never seen it growing wild within its limits; yet the Alleghany mountains contain many plants with which this grows in company where I have seen it, and it is more than probable that it grows in some of its arid woods. Under cultivation, like all the species of this genus, it improves much in size and luxuriance; and notwithstanding its evident predilection for dry sunny places, it is found to thrive in damp shady borders of rich soil, in gardens into which it has been introduced. Its similarity with another species, the *tenuifolia*, has caused some botanists to confound them under the idea of their identity. Besides that the leaves of the *tenuifolia* are much more delicate, long, and less rigid than those of the present plant—a slight glance at the ray petals of the former will suffice to show their discrepancy with those of the *verticillata*. Pursh by a singular oversight, has given precisely the same specific character to both these species, quoting Willdenow for both, referring to different pages of his work. The present plant may be recommended as a hardy perennial, increasing rapidly by sowing its own seed, in the open borders of gardens, and is well worth cultivation to the exclusion of the numerous less showy and more troublesome exotics so often nurtured there.

The table represents a flowering portion of the plant as large as nature.



TABLE LXXIV.

CYPRIPEDIUM PUBESCENS.

LARGE YELLOW LADY'S-SLIPPER.

Gynandria Diandria, Linn.

Orchideæ, Juss.

GENERIC CHARACTER.

Lip ventricose, inflated, saccate. *Petals* 4, the under one bifid. The *column* terminating behind in a petaloid lobe.

SPECIFIC CHARACTER.

Stem leafy ; lobe of the style triangular-oblong, obtuse ; exterior petals ovate-oblong, acuminate ; interior very long, linear, contorted ; lip compressed, shorter than the petals. *Willd.*

SYNONYMS.

CYPRIPEDIUM flavescens, Redout, pl. liliac.

C. calceolus, β . Sp. Pl. 1346.

C. calceolus, Walt.

WHOLE plant pubescent, from twelve to eighteen inches high. Root perennial, fleshy. Stem leafy, round. Leaves large, broad, plaited, resembling in general structure those of other species of this natural genus, sheathing the stem at the base, nearly the same colour on both sides, and covered all over with a short, soft, dense pubescence. Flowers very handsome and showy, generally solitary, though in situations favourable to its luxuriance it is sometimes found with two or three. Petals linear, siskin-green, with reddish spots, the two lateral petals very long and spirally convoluted. Lower lip and nectary bright gamboge-yellow. Grows on the sides of stony hills covered with underwood and small trees, which admit the sun through their leaves and branches to the ground, from Delaware to Canada. Flowers in May and June.

The name of the genus *Cypripedium* is derived from *Κυπρις*, *Venus*, and *πῶδιον*, *a shoe*—Venus's shoe, or Lady's-slipper. This is the second species of this curiously constructed genus figured in this work, and like most of the other species which would be eagerly cultivated for their beauty and singularity, it is transplanted with difficulty and rarely flowers the succeeding season, without great care in ensuring to it the same or similar soil as that in which it naturally grows. The same obstacle occurs in the cultivation of most of the orchidean plants of this country; and this shyness of culture is particularly to be regretted, since this tribe of plants furnishes us with many very elegant and curious species.

Cypripedium pubescens is a rare plant in the middle states, becoming more frequent towards the north. In the vicinity of this city above the falls of Schuylkill on the west side, it was, some years ago, somewhat frequent, but it has latterly almost entirely disappeared from that locality. Above the falls as high as French Creek, it is to be found sparingly.

The figure represents the plant of its common size—the flowers often being much larger.

TABLE LXXV.

MALAXIS LONGIFOLIA.

LONG-LEAVED MALAXIS.

Gynandria Monogynia, Linn.

Orchidæ, Juss.

GENERIC CHARACTER.

Petals 5, narrower than the lip, spreading or deflected. *Lip* flattened, undivided, sessile, (mostly situated behind.) *Column* porrected. *Pollinia* 4, parallel, affixed to the summit of the stigma. *Nutt.*

SPECIFIC CHARACTER.

Bulb subrotund; scape 2-leaved; leaves broad-lanceolate, longer than the scape; spike oblong; lip cordate, concave, canaliculate, shorter than the petals. B.

A YELLOWISH-GREEN plant, from three to seven inches high. Root perennial, a roundish bulb sending off a few fascicled radicles, and a large off-set, the germ of a new plant. Leaves a pair, broad-lanceolate, tapering at base and apex; they are often elliptical-lanceolate, long, and obscurely furrowed. Scape four-sided, and naked the greatest part



of its length, bearing an oblong spike of scattered flowers of a siskin-green colour, the lateral petals being straw-yellow ; spike generally ten-flowered. Petals linear. Germ short, being one-third the length of those of *Malaxis liliifolia*. Lip half the length of the petals, a structure in which this species differs strikingly from the one just mentioned, in which it is broad-spathulated, plane, or rather somewhat convex, and longer than the petals. Grows at the roots and under the shade of large trees in damp woods ; flowering in June.

The term *Malaxis* was applied by Professor Swartz to a new and very distinct genus of the orchidean tribe, established by Dr. Solander and himself. The word *μαλαξίς*, expresses softness, and seems to allude to the delicacy of habit and structure which marks these plants.

I discovered this species June 11th, 1815, while herborizing in the neighbourhood of this city, in the woods bordering the Schuylkill near Mantua village, and not more than a quarter of a mile from Market street Permanent Bridge. At that time, though I made a diligent search, no more than a single individual presented itself. On my return home I made the drawing from which the plate has been engraved. On the 15th of the same month I met with two more specimens in full flower, and two past florescence, the seed-vessel being formed ; and on the 16th read a description of the plant, accompanied with the drawing, to the Philosophical Society. The communication was referred to a committee of botanists, who reported an opi-

nion that the plant was identical with *Ophrys Loeselii* of Europe, and decided against publishing it under this impression. On the 13th of June, 1816, during an excursion with my class, near Mantua village, I detected four more specimens, and two others were found by two of the pupils accompanying me. Since that period I have annually found the plant growing along the course of the Schuylkill on the west side, in damp shady woods of rich soil. It is, however, rare, and rather local, and from its herbaceous hue is not easily seen even when in flower. Mr. Nuttall found it in the summer of 1818 on the Wissahiccon creek, near Longstreth's mills. In all the specimens found, the characters have been constant; and the only deviation which has occurred in those I have chanced to meet with, is in the size, several specimens having flowered when no more than three inches high. The leaves are usually, particularly in the smaller specimens, much longer than the scape, which has induced me to affix the specific appellation of *longifolia*, in lieu of the indiscriminative one by which I first designated it in the *Prodromus Floræ Philadelphicæ*.

This *Malaxis* delights in the same kind of soil and situation in which the other two American species of the genus are found. It grows in company with *Malaxis liliifolia*, *Malaxis unifolia*, *Hyosceris amplexicaulis*, *Ophioglossum vulgare*, *Botrypus virginicus*, *Onoclea sensibilis*, and other plants delighting in orchidean ground. It flowers about the second week of June, and continues in flower many days without much withering.

The opinion of the identity of this plant with *Malaxis Loeselii*, (Ophrys,) is decidedly erroneous. If there be any fidelity in botanical figures and description, those given in the best works of Ophrys Loeselii should never lead any one to confound the two plants. In the third volume of the *Flora Batava*, there is a fine figure of the European plant; and in *English Botany*, Vol. i. Plate 47, there is another good representation of this rare European *Malaxis*. In these figures the spike is twice the length of the leaves—the flowers differently constructed—the stem or scape triangular instead of four-sided as in *Malaxis longifolia*, and the petals not horizontal. The spike is fewer-flowered than in the present plant.

Fig. 1. Represents a plant of the largest size in flower of *Malaxis longifolia*.

2. A flower separated and magnified.

TABLE LXXVI.

CHELONE GLABRA.

SMOOTH SNAKE-HEAD.

Didynamia Angiospermia, Linn.

Bignoniæ, Juss.

GENERIC CHARACTER.

Calix 5-parted, tribracteate. *Corolla* ringent, ventricose. *Sterile filaments* shorter than the rest. *Anthers* lanuginous. *Capsule* 2-celled, 2-valved. *Seeds* membranaceously margined.

SPECIFIC CHARACTER.

Leaves opposite, lanceolate-oblong, acuminate, serrate ; spikes terminal, close-flow-
ered. *Willd. and Pursh.*

SYNONYM.

CHELONE glabra, *α.* Pursh.

A TALL, branching, showy plant, inhabiting watery places. Root perennial. Stem smooth, roundish or obscurely quadrangular, erect,



SPERMATOPHYTES

branching, strong, from two to three feet high, terminating in fascicled spikes of singular cream-white flowers. Leaves smooth, pale on the under side, opposite, numerous, crowded towards the summit of the stems and branches, situated on petioles not exceeding an eighth of an inch long, lanceolate, acuminate, sharply and deeply serrated, costa and nerves very conspicuous. Flowers crowded together in dense spikes, surrounded with clusters of large leaves. Spike becoming elongated during florescence. Calices imbricated. Scales convex, oblong; obtuse, of a pale yellowish-green colour margined with carmine. Corolla resembling a snake's head with the mouth gaping; hence the common name; ventricose, of a cream-white colour in the inflated portion and towards the base; apex discoloured with dingy green, mottled with reddish spots. Stamens included, very villous. Grows along the margins of rivulets and meadow drains, in watery thickets, and on the banks of grassy water courses, very common throughout the Union. Flowers from July till October, and I have often met with luxuriant flowering specimens during that revival of vegetation which takes place in our autumn, as late as November.

Pursh does not consider this a distinct species from the *Chelone obliqua*, which is surprising to me. They cannot be confounded, consistently with our present rules for specific discrepancy.

The name *Chelone* is derived from *χελωνη*, a *tortoise*.

Chelone glabra is a hardy herbaceous plant, bearing transplantation in early summer exceedingly well, and continuing to thrive, flower, and form seed in autumn, if abundantly supplied with water. It is remarkable that although it is seldom or never found except in watery places, it thrives well in the exposed borders of gardens, into which it may be advantageously introduced, requiring no care after the first season.

The figure represents a flowering specimen the size of nature.

TABLE LXXVII.

POGONIA OPHIOGLOSSOIDES.

ADDER'S TONGUE POGONIA.

Gynandria Monogynia, Linn.

Orchideæ, Juss.

GENERIC CHARACTER.

Petals 5, distinct, without glands. *Lip* sessile, cucullate, internally crested. *Pollen* farinaceous.

SPECIFIC CHARACTER.

Root fibrous; scape distantly 2-leaved; leaves oval-lanceolate; lip fimbriated.
Willd. and Pursh.

Root horizontal, perennial, consisting of carnose fibres. Stem erect, from eight to ten inches high, terete, smooth, furnished with a single lanceolate, three-nerved, sub-obtuse leaf about midway of its length, the base of which sheathes the stem. Flower mostly solitary, sometimes there is a pair, terminating the stem, and garnished by a linear-lanceolate, sub-obtuse bract, which might be considered a



second stem-leaf. All the parts of the flower peach-blossom-red, the lower lip fimbriated ; germ three-fourths of an inch long. Pursh states that the flowers are sometimes white—this I have never seen. Grows in wet meadows, bogs and morasses, from Canada to Louisiana, common. Flowers in June and July.

This simply formed and beautiful little plant is the second of Mr. Brown's genus figured in this work. It is one of the commonest of our bog plants, and thrives in pots filled with bog-earth kept in the shade. In this manner the flowers improve in beauty, and indeed the whole plant becomes somewhat more robust. Much care however is required to renew the earth when exhausted—otherwise the roots perish.

The table represents the plant of its natural size.

TABLE LXXVIII.

HAMAMELIS VIRGINICA.

WITCH HAZEL.

Tetrandria Monogynia, Linn.

Berberides, Juss.

GENERIC CHARACTER.

Calix 4-cleft, persistent, with three bractes. *Petals* 4, long and linear, with a short, dilated filament at the base of each ; filaments and anthers united. *Anthers* 2-celled, each cell having a vertical valve. *Capsule* coriaceous, (nut,) 2-celled, 2-lobed, 2-awned ; apex 2-valved ; valves cleft. *Seeds* 2, arillate.

SPECIFIC CHARACTER.

Leaves ovate, acutely dentated, cordate, with the sinus small. *Pursh.*

A LARGE branching shrub, attaining the height and dimensions of a small tree. Branches irregular, the smaller ones knotty and zig-zag by inches, halves, and quarters of an inch ; the knotty prominences originating from the cicatrices formed where the former leaf-stalks have been. Bark ash-grey, smooth, mottled with lighter spots of the



Drawn from Nature by W. P. C. Barton.

Engraved by C. Tichbourn.

HAMAMELIS VIRGINICA.

same hue and sienna-brown. A small blue lichen often invests even the smallest twigs. Leaves large, smooth, broad-ovate, unevenly cordate at base, terminating in an obtuse point; irregularly and largely toothed; the teeth sometimes acute, often obtuse. Costa prominent beneath, sending off on either side, alternately at acute angles, five or six nerves. Flowers situated on short foot-stalks in clusters along the ends of the branches. Calices at first small, afterwards enlarging with the approach of the fruit to maturity, consisting of thick scales, externally pubescent. Stamens generally four, shorter than the calicine segments. Petals gamboge-yellow, linear, obtuse, from half to three-quarters of an inch long, involuted at their ends. The germ enlarges slowly, requiring a whole year to bring it to maturity, at the expiration of this time it becomes a hard, ovate nut of an ochre-yellow colour, and invested externally with a dense, short pubescence, notched at the apex in the line of a subsequent fissure dividing the nut into two halves, on the occurrence of which the seeds, four in number, are thrown out. This opened nut remains for the most part on the branches long after the succeeding period of florescence, becoming after the seeds are dropped of a bistre-brown colour. Hence the flowers and fruit are found on the shrub at the same time, which has given origin to the generic appellation *Hamamelis*—*ἡμამελις*, being an ancient Greek name from *ἡμα*, accompanying, and *μηλεα*, or *μηλις*, an apple-tree, because the plant which bore it blossomed at the same time. This is supposed by modern Botanists to have been the *Mespilus Amelanchier* or something near it. Linnæus finding the name unoc-

cupied, fixed upon it for a new American shrub which Mitchell had called in his letters Trilopus. The reason of its application in the present instance seems to be, that as the fruit is a whole year in ripening, it accompanies the flowers in autumn, which are destined to produce the next year's fruit. The shrub begins to bloom generally in October, while the leaves have either fallen, or are for the most part yellow and decayed—and continues flowering in favourable situations all winter. It inhabits stony ground, generally near the sunny borders of water courses.

The divining rods formerly used by impostors, who pretended to find precious ores, were made of the twigs of this tree; and, in some parts of the United States the credulous vulgar are still imposed on by persons who pretend to find water by the indication of its branches. For this purpose a forked branch is used and twirled between the fingers and thumbs of both hands, during the muttering of some mystical words, when, in the spot towards which the point of the bifurcation drops or points, water is said by them to exist. Hence the name Witch Hazel.

The figure represents a terminal flowering twig of the size of nature, culled on the 20th of October.

TABLE LXXIX.

GENTIANA SAPONARIA.

SOAPWORT GENTIAN.

Pentandria Digynia, Linn.

Gentianæ, Juss.

GENERIC CHARACTER.

Calix half 5-cleft, or half 5-parted. *Corolla* tubulous at the base, campanulate ; border 4 or 5 cleft ; divisions ciliate or entire, spreading, erect or connivent, sometimes furnished with intermediate plaits. *Stamina* 4 or 5, distinct or connate. *Capsule* 2-valved, 1-celled ; receptacles 2, longitudinal.

SPECIFIC CHARACTER.

Stem terete, smooth ; leaves oblong-lanceolate, three-nerved ; flowers sessile, fasciculated, terminal and axillary ; corolla 2-cleft, campanulate, ventricose ; divisions obtuse.

SYNONYMS.

GENTIANA fimbriata, Vahl. 3. p. 47.

G. Catesbei, Walt.



Drawn from Nature by W.P.C. Barton.

Engraved by C. Tiebout.

GENTIANA SAPONARIA.

Root perennial, consisting of several large, fleshy portions. Stem numerous from the same root, erect, simple, terete, very smooth and shining, of an apple-green hue, drying nearly white. Leaves opposite, decussating, sessile or rather amplexicaule, large, broad-lanceolate, nearly acuminate, entire, smooth on both sides, very pale apple-green underneath, crowded at the summit. Costa prominent, having one or two nerves on either side near to the margins. Flowers axillary and terminal, numerous, sessile, and occasionally pedunculate, in clusters of two, three, or four. Corolla campanulate, ventricose, four-cleft and very finely toothed, puckered or plaited at the mouth, when in full bloom expanding sufficiently to show the internal whiteness of the folds. Stamens and pistil concealed by the corolla, which is of a fine Prussian-blue blended into whiteness at the base, near which are four small, bracteiform, green, ovate, acute leaves. Each fascicle of flowers whether axillary or terminal, is garnished by several lanceolate, acuminate leaves resembling those of the stem except in size, being only one inch and one and a half inch long. Grows in boggy ground and damp rich meadows, from Canada to Louisiana, common. Flowering in August and September.

The genus to which this elegant plant belongs is the *γεντιανη* of the Greeks, from Gentius, king of Illyria, who is said to have discovered it, or first experienced its virtues as a cure for the plague which infected his army. The North American species are eight or ten, the present being one of the most elegant. It is well deserving more extensive

cultivation, inviting to this by its hardiness. The roots, like most species of this genus, are very bitter, and might be substituted for those of foreign gentian. They are, however, so much smaller than those of *Gentiana lutea*, that the latter would always be preferred.

The figure represents the top of a plant of the size of nature.

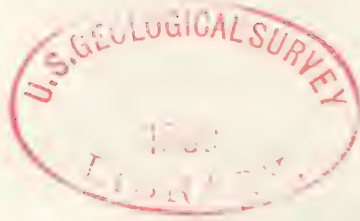


TABLE LXXX.

GENTIANA CRINITA.

FRINGED-PETALLED GENTIAN.

SPECIFIC CHARACTER.

Corolla 4-cleft; segments fimbriate; leaves lanceolate, acute; stem erect, terete.

Sp. Pl.

SYNONYM.

GENTIANA fimbriata, Botanical Repository, 509.

Root biennial, smaller than that of the preceding species, but likewise bitter. Stems very numerous from the same root, about ten or twelve inches high, round and smooth. Leaves short, lanceolate, broad at base, acute, sessile, glabrous, same colour on either side. Flowers terminal, solitary, large, of a rich bluish-purple; the segments of the corolla being beautifully fringed. Calix segments lanceolate. Inhabits damp woods and meadows near trees; flowering from September till November.



GENTIANA CRINITA.

This very elegant plant is the richest of the American species of its genus, and is well worth cultivation.

The table represents a flowering summit of a plant of its usual size ; flowers are sometimes larger and occasionally smaller.

TABLE LXXXI.

BARTONIA ORNATA.

BARTONIA.

Icosandria Monogynia, Linn.

Loaseæ, Juss.

GENERIC CHARACTER.

Calix superior, 5-cleft, persistent. *Corolla* of 10 petals. *Capsule* cylindric-oblong, 1-celled, summit flat, valvular: *valvulæ* 3 to 7. *Receptacular placentæ* 3 to 7, parietal. *Seeds* numerous, compressed, arranged horizontally in a double series.

Herbaceous; leaves alternate, pinnatifid, asperate; flowers large, terminal and solitary, vespertine, (or expanding towards sun-set,) not deciduous or marcescent after closing, but re-opening at the usual time for several days in succession, when closed involute in a cone; small valves of the capsule variable in number, but corresponding with the placentæ, and the spiral striatures of the stigma; in the germ there exists the rudiments of a columnar receptacle. The whole plant turns blackish in drying—on the slightest wound it also exsudes a resinous sap which instantly blackens in the air. Pubescence compoundly barbed and tenacious, as appears to be more or less the case in the whole order of the LOASEÆ. *Nutt.*

SPECIFIC CHARACTER.

Leaves lanceolate, interruptedly pinnatifid; segments sub-acute; base of the capsule foliose; valves 5 to 7; seeds nearly without margin. *Nutt.*



BARTONIA SUPERBA, Sm.

Fl. DEN. VI. Pursh.

SYNONYM.

* *BARTONIA* decapetala, Sims's Bot. Mag.

THE whole plant, except the petals, more or less scabrous with short barbed hairs. Biennial; root long, succulent and fusiform. Stem irregularly angular and much branched, two to four feet high. Leaves alternate, sessile, oblong-lanceolate, interruptedly and sinuately pinnatifid, six to eight inches long; segments three to six lines in length, incurved, generally with one or two dentures on the lower side; uppermost leaves ovate-lanceolate, or dilated at the base. Calix inseparably investing the germ, border five-cleft, superior, segments lanceolate, acuminate, persistent, an inch long. Flowers odorous, yellowish-white, of uncommon magnitude almost resembling some species of *Cactus*, solitary and terminal, sessile. Petals ten, lanceolate-ovate, concave and spreading, conspicuously unguiculate, acute, numerous, nerved, inserted upon the calix, about two inches long, the five interior somewhat smaller. Stamina very numerous, from two hundred to two hundred and fifty more or less, a little shorter than the corolla and inserted also upon the calix; filaments scarcely attenuated, filiform; anthers small, oblong, distinct, inserted upon the subulate summit of the filament, about a line in length, two-celled. Germ appearing inferior, being inseparably invested by the lower part of the calix. Style filiform, a little longer than the stamina, tubular, arising from the centre of the valves, longitudinally and spirally striate, nectarifer-

ous at the base, striæ five to seven, corresponding in number with the valves of the capsule; distinct stigma none. Capsule cylindric-oblong, one-celled, terminated by the persistent calix; summit flat and orbicular, valvular, valves five to seven, opening from the centre; receptacle parietal, placentulæ five to seven, succulent, two rows of seeds in each. Seeds numerous, flat, subovate, nearly immarginate; embryo straight, surrounded by a thin carnose perisperm; cotyledones two, flat, white; radicle umbilical, inferior, exserted, plumule inconspicuous. *Hab.* On the banks of the Missouri in broken argillaceous soils. Flowering from the latter end of August through September, and into October, but never in July. *Nutt.*

The genus *Bartonia* was named by Pursh and Nuttall in honour of Dr. Benjamin Smith Barton, a man who contributed greatly to the scientific character of our country, and to whom American Botany, particularly, is under immeasurable obligations for its early cultivation and advancement.

The type of the genus, the very curious and elegant species here figured, was discovered on the White Bluffs, near Maha Village, by the late M. Lewis, Esq. in 1804. A second species of *Bartonia*, *B. nuda*, is described by Pursh in Sims's Botanical Magazine, in which the germ is naked and the seeds winged. This species Mr. Nuttall found on the banks of the Missouri. It is biennial likewise, has smaller

flowers, and the leaves are not so glaucous as those of *B. ornata*. In every other respect Pursh remarks, the description of *ornata* is applicable to *B. nuda*, with little deviation. In the latter species the number of petals is variable from ten to fifteen.

The table represents a flowering specimen as large as nature.

TABLE LXXXII.

GERARDIA TENUIFOLIA.

SLENDER-LEAVED GERARDIA.

Didynamia gymnospermia, Linn.

Scrophulariæ, Juss.

GENERIC CHARACTER.

Calix half-cleft, or 5-toothed. *Corolla* sub-campanulate, unequally 5-lobed, segments, mostly rounded. *Capsule* 2-celled, opening at the summit. *Nutt.*

SPECIFIC CHARACTER.

Paniculate branched, leaves linear; peduncles axillary, opposite, longer than the flowers. *Willd.*

SYNONYM.

G. erecta, Walt.

PLANT small and delicate. Root biennial. Stem erect, very much branched, about ten or fifteen inches high. Branches fragile, and nearly filiform. Leaves sessile, opposite, linear, acute, rigid, becom-



Verandea tenuifolia, R. & S. Watson

Verandea tenuifolia

VERANDIA TENUIFOLIA

ing arcuate when the plant is advanced. Flowers handsome, very numerous, and situated on filiform peduncles an inch long. Calix small, five-toothed, teeth short. Corolla lake-red, segments large, obtuse, delights in dry soils on the edges of woods. This species resembles very much the *Gerardia purpurea*, which however is a much more robust plant, and differs strikingly from the present species in the flowers, which are sessile.

The genus to which the present species belongs, was named in honour of John Gerarde, a distinguished herbalist, who flourished in the time of queen Elizabeth. It is an American genus, and rich in a number of showy plants of various coloured flowers, of which the most common are red and yellow.

The plate represents the plant as large as nature, specimens being frequently smaller, and occasionally larger than the type from which it was drawn.

TABLE LXXXIII.

CYPRIPEDIUM HUMILE.

NOAH'S ARK. PURPLE LADY'S SLIPPER. MOCCASSIN FLOWER.

Gynandria Diandria, Linn.

Orchideæ, Juss.

GENERIC CHARACTER.

Lip ventricose, inflated, saccate. *Petals* 4, the under one bifid. The column terminating behind, in a petaloid lobe.

SPECIFIC CHARACTER.

Scape leafless, one-flowered ; radical leaves a pair, oblong-obtuse ; lobe of the style sub-rotund-rhomboid, acuminate, deflexed ; lip longer than the lanceolate petals, with a fissure behind. *Willd.*

SYNONYM.

CYPRIPEDIUM acaule, Aiton.

Root perennial, an irregular bulb, with numerous carnose fibres. Leaves radical, a pair, ovate-lanceolate, pubescent, grooved by deep



Pinguicula vulgaris L.

nerves sheathing each other, and embraced near the root by two or more stipular-like sheathes. Scape naked, erect, embraced while the plant is in flower by the folded leaves, which afterwards expand and increase in size. Flower solitary and terminal. Petals dull purplish-green, or purple and yellow, long. Nectary large, pendulous, globose, pubescent, lake-red, delicately streaked with darker veins of the same hue. Grows in deep shady swamps and morasses, where the soil consists of a rich mould from decayed vegetable matter. In these situations only, the plant attains perfection—for though sometimes found in drier places, it is comparatively small, and much less beautiful. Grows throughout the union, but especially abundant and luxuriant in the bogs of Jersey, where I have often seen specimens twice the size of the one figured in the plate. Flowers in May and June.

This singular plant partakes of the peculiarity of structure which belongs to the genus of which three species are figured in this work. It is a favourite flower, from the circumstance of its continuing to bloom a long time. It does not however, bear the soil or atmosphere of common gardens, the moisture that is requisite for its vigour being in them wanting, it soon dwindles in size or totally disappears. I have repeatedly attempted to cultivate it, but have never had a plant to bloom a second season.

The table represents the plant of its common size during florescence, after which the leaves become broader and larger.

TABLE LXXXIV.

POTAMOGETON DIVERSIFOLIUM.

VARIOUS-LEAVED POND WEED. SMALLEST POND WEED.

Tetrandria Tetragynia, Linn.

Najades, Juss.

GENERIC CHARACTER.

Calix 4-leaved. *Corolla* 0. *Style* 0. *Seeds* 4. Leaves sheathing; those of the stem often attenuated, floral leaves mostly opposite; flowers spiked, terminal, or axillary; ramuli and spikes having frequently two sheathes at the base. *Nutt* one-seeded, cochleated; embryo erect, exalbuminous, curved, involuted.—*Nutt*.

SPECIFIC CHARACTER.

Plant small, delicate; stem filiform, emersed; floating leaves elliptical, petiolated, half an inch long, six-nerved; submersed leaves sessile, filiform, long; spikes numerous, small, depressed, in the axills of the leaves.—*B. Prod. Fl. Ph.*

A SINGULAR and delicate little plant. Upper leaves about half an inch long, and not quite a quarter wide, elliptical, somewhat convex on their disk, dark, shining sap-green, six-nerved, (rather six-grooved, the nerves being depressed,) petioles very short. Submersed leaves very delicately filiform. Stem filiform. Flowers few, borne on axillary.



compressed spikes, differing in this structure remarkably from all other American species of the genus, which bear their flowers in long terminal spikes. Inhabits stagnant pools with boggy bottoms, in Jersey near Woodbury, flowering in July and August.

The generic appellation *Potamogeton*, (signifying Pond weed,) is the ποταμογειων of the ancient Greeks, so called from ποταμος, a *river*, and γειων, a *neighbour* or *ally*, because all the species of the genus inhabit pools and ponds. The present little plant I detected in July, 1814. The small nutant leaves, about six or eight in number, have a convex and very shining appearance, resembling, as they are spread on the water, the little aromatic water beetle, which is often seen on the surface of stagnant pools. The submersed leaves and stem are so very delicate as to be imperceptible, except in very clear water. This species is allied to *P. hybridum* of Michaux, but is very distinct. It is not unlikely that it is the *P. setaceum** of Pursh. I had published it prior to the publication of his work under the above specific name, therefore have not thought proper to change it.

The table represents the plant of the natural size.

* *P. setaceum*. Upper leaves opposite, lanceolate, 5-nerved, short, petiolate, lower ones alternate, filiform, spikes dense, alternate, shorter than the leaf, *Pursh*. On small lakes and rivers, on the pine barrens of Jersey, 2. July, August, V. S. The upper leaves are scarcely half an inch long, the whole plant very slender. *Pursh*. Fl. Am. Sep. vol. i. p. 120.

TABLE LXXXV.

IRIS PRISMATICA.

PRISM-CAPSULED IRIS.

Tetrandria Monogynia, Linn.

Irides, Juss.

GENERIC CHARACTER.

Corolla 6-parted, large ; three of the lamina erect ; the other three reflected, with or without a crest or beard on the inner side, and bearing the stamina at their base. *Style* short. *Stigmata* 3, petaloid, oblong, large, usually arched. *Stamina* incumbent, covered by the stigmata. *Capsule* 3-celled, 3-valved, many-seeded. *Seeds* flat, triangular, (in some species nearly round or spherical.) *Nutt.*

SPECIFIC CHARACTER.

Flowers beardless ; stem solid, round, as long as the leaves ; leaves very narrow and long ; capsule long, in the form of a prism, narrowed at each end. *Pursh.*

Root perennial, resembling the roots of other species of this natural genus. Stems very numerous, about two or three feet high, solid, round, smooth, slender, erect, somewhat tortuous, diverging from a right line at the joints where the leaves originate. Leaves smooth, linear, and grass-like, numerous, very long, particularly those arising from the root, terminating for the most part in a sphacelated acumination. Flowers terminal, solitary, or by pairs, bi-bracteate. Bractes



IRIS PULCHRA

sheathing, ventricose, acuminate. Germ obscurely prismatic, small, rarely exceeding during inflorescence, a quarter or half an inch, swelling and becoming elongated soon after the flower fades, and finally becoming a large, distinct, prismatic capsule. Flowers campanula purple, smaller than those of the generality of the species. Petals spathulate, obtuse, paler and often white towards the base. Stigmas linear, incurved. Grows in damp places in the vicinity of water courses, sometimes but rarely found in exsiccated thickets. Not common, nor very abundant where found. Flowers in July.

The genus *Iris* is the *ιρις* of the ancient Greeks, so named from the various, and somewhat concentric hues of the flowers, which give an idea of the rain-bow. The modern Greeks call it *ιριδος*, and the Turks *susen*, both which words are synonymous with the English word *lily*, and the French *fleur-de-lis*.

The present species was first particularly described by Pursh. It had previously been confounded with his *Virginica*, under which name it stands in the catalogue and borders of Kingsessing or Bartram's Gardens. In the neighbourhood of this city it is found near Kaighn's point on the Jersey side of the Delaware—it is occasionally met with along the banks of the Schuylkill a little south of Bartram's gardens.

The table represents a flowering portion of its natural size, the radical leaves however, being four times as long as the largest of the figure.

TABLE LXXXVI.—FIG. 1.

MONOTROPA UNIFLORA.

ONE-FLOWERED WAX-PLANT.

Decandria Monogynia, Linn.

Monotropæ, Nutt.

GENERIC CHARACTER.

Calix none. *Corolla* pseudo-polypetalous, persistent; segments 5, each with a cucullate, nectariferous base. *Anthers* reniform, horizontal, 1-celled, emitting the pollen near the middle, by two transverse foramina. *Stigma* orbicular, naked. *Capsule* 5-celled, 5-valved. *Seeds* very numerous, minute, subulate. *Nutt.*

SPECIFIC CHARACTER.

Scape short, thick, one-flowered; scales approximate; flower drooping. *Pursh.*

A parasitic plant about a span high, every part of a snow-white colour, and perfectly smooth. Root a globose perennial body, an inch thick, consisting of a great number of densely ramified fibres of a sienna-brown colour. Fibres very brittle. Stems four or five from the same root, erect, nutant at the apex, and supporting each a droop-



SCIRPUS PLEURISANTHUS

BOUYETIOLA ENIFLORA.

ing, terminal flower. Scale-like leaves small towards the root, larger above, ovate-obtuse, nerved, the nerves from five to seven. Corolla persistent, consisting of about eight petals, which are channelled and connected to the base of the germ. Stamina ten, filaments pubescent, anthers kidney-shaped and horizontally peltate. Style small; stigma smooth, orbicular, becoming pitcher-shaped, depressed in shape of a hollow cone at the apex, having the margin viscid and raised by a glandular structure. Capsule consisting of five cells and five valves, containing a great number of very small, brownish seeds. Grows in rich shady woods, flowering in May and June.

The genus *Monotropa*, as modified by late botanists, contains but two species. The present plant is the most common of them, and is greatly prized by reason of its delicate appearance, every part of it except the root and anthers being snow-white, and having the appearance of the most delicate white wax preparation. It dries entirely black, the anthers alone retaining their original colour. The figure represents the plant the size of nature, and is left untinted, a delicate engraving being the only mode of representing a pure white plant.

TABLE LXXXVI.—FIG. 2.

SCIRPUS PLANIFOLIUS.

FLAT-LEAVED CLUB-RUSH.

Triandria Monogynia, Linn.

Cyperoideæ, Juss.

GENERIC CHARACTER.

Calix scales chaffy, imbricated on all sides in a spike. *Corolla* none. *Style* filiform, unbearded, deciduous. *Seed* one, naked, or surrounded with involucellate setæ or threads.

SPECIFIC CHARACTER.

Culm triquetrous, a span high, nearly naked, cespitose, leaves nearly radical, alternate, linear, flat, keeled, scabrous, the lower ones broad, short-nerved, pointed, the rest three-nerved, equal in length to the stem. Spike terminal, ovate, acute, 6-flowered, bracteated; bractea yellowish, ovate, spit pointed, longer than the spike. *Cal.* glume ovate, pointed, yellowish, keel green. *Pist.* bifid and trifid. Seed brown, triquetrous, bristles 3, as long as the seed. *Muhl.*

THIS small and very pretty species of rush was first described by Muhlenburgh, who affixed the above specific name to it as charac-

teristic of the flat leaves. The leaves are said by that botanist to be nearly radical. All the specimens which I have found, with the exception of one or two, have had radical leaves, and in those which had alternate leaves, the alternation could readily be traced under a sheath, formed by the leaves closely investing each other by folds, down to the root. The table represents the plant about as large as it is usually met with—specimens occasionally occur, which are larger. Grows in damp boggy places in Jersey, near Woodbury, flowering in May—Rare.

TABLE LXXXVII.

HEPATICA TRILOBA, *a.* *OBTUSA*.

THREE-LOBED LIVERWORT. NOBLE LIVERWORT.

Polyandria polygynia, Linn.

Ranunculaceæ, Juss.

GENERIC CHARACTER.

Calix 3-leaved, *Petals* six to nine. *Seeds* naked.

SPECIFIC CHARACTER.

Leaves three-lobed, very entire, lobes round, obtuse, scape one-flowered. *Willd.*

SYNONYM.

ANEMONE hepatica, Willd. Sp. Pl. 2. p. 1273.

Root perennial, consisting of numerous long fasciculated fibres of an umber-brown colour. Leaves all radical, cordate, three-lobed, margin turned towards the under disk, partly sempervirent, of a leathery tex-



ture, shining, and covered with a few scattered hairs above, nearly naked on the under side. Lobes obtuse, and equal to each other in size, mottled with purple and deep olive-green above, and purple and light green beneath. Petioles very long, often eight inches, twisted or involute towards their junction with the leaves, they are purplish, covered with a few hairs, and invested at their base with several membranaceous sheathes, which inclose also the scapes. Scapes several from each root, at first very short, with the concealed flower drooping, covered with a long silken pubescence of an ash colour, afterwards elongating, and supporting each a single flower. Calix leaves the shape of a mouse's ear, and resembling it. Petals varying from six to nine, of a fine campanula-purple colour, sometimes, but rarely, white. Anthers straw-yellow. Grows in rich woods among decayed leaves, under which it is frequently found in flower while the snow is on the ground.

The table represents the plant of its natural size.

TABLE LXXXVIII.—FIG. 1.

LYGODIUM PALMATUM.

PALMATE-LEAVED SNAKES' TONGUE.

Cryptogamia filices, Linn.

GENERIC CHARACTER.

Spikes unilateral. *Capsules* in two series, opening on the inner side from the base to the summit. *Indusium*, (or veil,) squamiform, covering each capsule.

SYNONYMS.

HYDROGLOSSUM palmatum, Willd. and others.

CTEISSIUM paniculatum, Michaux.

STEM twining, fronds conjugate, leaflets lobed, entire, spikelets paniculate. The only continental species known—the other species being natives of the West Indies. Whole plant entirely smooth, delicate, and twining. Stem sienna-brown, very smooth and shining. Fronds in pairs, and lobed, lobes from four to eight in number, obtuse, irregularly entire, somewhat glaucous on the under side, common



CHAMA VERNALIS

LYCOPodium PALMATUM.

stipe, or stipe of the pair of fronds pubescent, partial stipes slightly so, and very slender. Panicle of spikelets terminal and twining. Grows "on the swampy margins of small water courses, from New Jersey to Carolina, rare."—*Nutt.*

The figure represents the plant the size of nature.

TABLE LXXXVIII.—FIG. 2.

DRABA VERNA.

WHITLOW-GRASS. SHAD-BLOSSOM.

Tetradynamia siliquosa, Linn.

Cruciferae, Juss.

GENERIC CHARACTER.

Silicle entire, oval-oblong, valves flattish, parallel with the dissepiment. *Style* scarcely any.

SPECIFIC CHARACTER.

Scape naked, leaves oblong-acute, sub-serrate, hairy; petals bifid, stigma sessile.
Willd.

SYNONYMS.

DRABA hispidula, Michaux.

D. verna, β . *Americana*, Persoon.

Roots fibrous, annual or semi-annual. Leaves numerous, crowded, all radical, about half an inch long, of an oblong shape, acute at the apex, towards which they are somewhat serrated, every where hairy.

or rather densely pubescent. Scapes numerous, forming a curve or semicircle from the roots upwards, pubescent about half their length. Flowers alternate, pedunculate, numerous. Peduncles at first short, becoming elongated as the fruit is matured, when they are about three-fourths of an inch in length and very slender. Petals white, very small, bifid. Fruit an oval pod, consisting of two membranaceous valves. Style very small. Stigma sessile. Seeds numerous, small, brownish.

The American species are six in number, of which the present is the most common, often covering whole fields and acres of unenclosed grounds in the vicinity of cities, giving them an entire white appearance. Though this little plant is far from possessing any beauty, it is nevertheless very interesting to those who take any interest in plants, from the circumstance of its being the earliest har-binger of the American Spring. It frequently is found in bloom when not more than half an inch high, during the soft weather of February, and constantly in March, about the 12th of common seasons. It drops its seeds early in the season, which appear again to produce new plants that flower in the autumn.

The figure represents the plant of its natural size, culled in April. By comparison with the European *Draba verna*, it may be ascertained whether the plants are identical. This by Michaux and Dr. Barton was supposed not to be the case.



WITTELLA SPICIFLORA

TABLE LXXXIX.

MITELLA DIPHYLLA.

TWO-LEAVED MITELLA. BISHOP'S CAP. AMERICAN BASTARD
SANICLE.

Decandria Monogynia, Linn.

Saxifragæ, Juss.

GENERIC CHARACTER.

Calix 5-cleft, persistent. *Petals* 5, pinnatifid, inserted upon the calix. *Capsule*
1-celled, semibivalvular, valves equal.

SPECIFIC CHARACTER.

Leaves sub-lobate, acute, angled, dentate; stem erect above, two-leaved, leaves opposite. *Willd. and Pursh.*

ROOT a jointed caudex, reddish and white with old scales of a dark brown hue, having numerous lateral fibres proceeding from it of an umber-brown. Radical leaves deeply cordate, with the lobes overlapping each other. Doubly toothed, small teeth with a very acute apex. Veins conspicuous. Upper disk covered with a few scattered hairs, under disk the same, but costa and veins hairy. Petioles about six inches

long, inserted into a joint of the root, round, loosely invested, particularly near the leaf, with bristle-like hairs. Stems, several from the same root, erect, cylindrical, hispid, two-leaved. The pair of leaves much smaller than those of the root, being situated about two or three inches from the summit of the spike of flowers. The latter about eight in number, distinctly separated. Flowers cream-white, consisting of five fringed spreading petals, giving to the front view a stellated appearance. On the banks of water-courses near rivulets—flowering in May. Perennial.

The genus to which the present plant belongs, was so named by Tournefort, in allusion to the shape of the ripe seed vessel, which, with its two-pointed lobes, resembles a little mitre. It is, with the exception of *Mitella nuda* of Northern Africa, an American genus, consisting of five known species. The one here figured, rarely exceeds fourteen or fifteen inches in height, and in the largest specimens the flowers are not larger than is represented in the plate. It grows throughout the union. Near this city it is pretty abundant on the Wissahickon creek; I have only met with it there.



TABLE XC.

OBOLARIA VIRGINICA.

Tetradynamia Monogynia, Linn.

Gentianæ, Juss.

GENERIC CHARACTER.

Calix 0, or in the form of two bractes. *Corolla* campanulate, 4-cleft, segments entire, (the margin sometimes crenately torn.) *Stamina* equal, proceeding from the clefts of the corolla. *Stigma* emarginate. *Capsule* ovate, 1-celled, 2-valved, many-seeded, seeds minute.

SPECIFIC CHARACTER.

Stem simple; leaves oblong-truncate, fleshy, purple underneath; flowers axillary, solitary, sessile. *Willd. and Pursh.*

Root white, fleshy, contorted, perennial? Stem obscurely quadrangular, whitish, tinged with dull purple. Leaves sessile, alternate, wedge-shaped, very broad at base, the margins decurrent, giving an angular appearance to the stem. Two branches generally proceed from the root, each supporting two opposite leaves, from the bosom of which proceed three flowers, with each a pair of spatulate bracts.

The two lowest branches of the main stem, are about three-fourths or half an inch long, proceeding from the axills of the lower leaves, and each one supporting a pair of opposite leaves with three flowers, each of which has a pair of bracts. The second pair of leaves above, are nearly opposite, and support one flower with a pair of bracts, the third, fourth, and fifth pair in similar manner, but crowded, giving the apex a confused appearance. All the leaves and bracts glabrous, involuted, of a dull bluish-green tinged with purple. Flowers pale purple or lilac. Corolla urceolate below, where it is whitish. Segments deeply cleft, four in number, acute, with the edge wrinkled. Filaments slender, anthers straw-yellow, germ oval, obscurely four-angled, terminated by the persistent style and stigma. April and early May.

The genus to which this plant belongs, is exclusively American, and hitherto only one species has been detected, the plant represented in the plate. It appears to have been but little known. It was not found in the herbarium of Linnæus, who however had seen and described it, giving the genus the name *obolaria*, (from *obolus*, a small ancient coin,) a name equivalent to money-wort, and in allusion to the orbicular shape of the calicine segments. Siegesbeck had chosen the same name for the plant now celebrated by bearing that of Linnæus. Neither Michaux nor Jussieu mention it, nor has Lamark figured it in his illustrations. In fact, it is one of the rarest of American plants. In the neighbourhood of this city it grows but in two or three locali-

ties, viz. on the Wissahickon creek and the Schuylkill, both sides, near the falls; and in these I have never found but three or four specimens, though I have carefully searched for them. The specimens from which the drawing was made, were larger than any I had ever before met with—owing probably to the favourable situation in which they were growing, being on the low banks of the Wissahickon creek, exposed to the south, and protected from the north by the high rocks which bound that beautiful water-course.

In the *Compendium Floræ Philadelphicæ*, I have described this plant as not exceeding three inches in height, and at the time of my publishing that book, I had never met with specimens of greater stature, owing probably to the deep shade of *Abies Canadensis* and *Juniperus communis*, which rendered the woods impenetrable by the rays of the sun. I am inclined to think that the size of the plant represented in the plate is not equal to that which it would obtain under culture in its natural soil, which is a rich mould, formed of decayed vegetable matter. The whole plant is somewhat bitter, like the roots of all the *Gentianææ*.

TABLE XCI.

CEPHALANTHUS OCCIDENTALIS.

BUTTON-WOOD. AMERICAN BUTTON-WOOD. GLOBE-FLOWERED
SHRUB. POND DOGWOOD.

Tetrandria Monogynia, Linn.

Rubiaceæ, Juss.

GENERIC CHARACTER.

Common calix 0; *proper* superior, small and angular, 4-cleft. *Corolla* tubular, slender, 4-cleft. *Stamina* exserted. *Stigma* globose. *Capsule* mostly bipartite, (2 to 4,) 2-celled, 2-seeded; cells semibivalvular, exterior valve angular, indurated, interior flat and flexile. *Seed* solitary, sheathed at the apex with a tubercose callus. *Receptacle* globose, hairy.

SPECIFIC CHARACTER.

Leaves opposite and ternate.

A SHRUB from five to ten feet in height, often flowering when only two feet high; very much branched. Bark of trunk rough, of the branches smooth, of an umber-brown colour. Leaves oval, undulate, entire, acuminate and attenuated at base, smooth on either side. Petiole three-



From Plant. Salicaria by R. P. C. Lottin

Fig. 4 by C. D. Ellis

Salicaria (L.) Rostk. Schmidt

fourths of an inch long, smooth, carmine-red. Costa prominent, bright carmine-red. Veins raised, of a straw-yellow colour. The leaves are most frequently opposite, in pairs, but often by threes. Flowers numerous, very fragrant, in a globular form at the ends of the branches, about the size of a small walnut, cream-white, with the stigmas projecting. Florets funnel-form, four-cleft, segments ovate, style exserted, as long as the corolla. Stigma capitate, yellow. Grows throughout the union on the margins of water-courses. Flowering in July.

The genus *Cephalanthus* is peculiar to North America, and contains only one well known species. A variety with pubescent leaves is said by Dr. Baldwin to grow near Riceborough, in Georgia. The inner bark of the plant figured here, is said to be possessed of tonic properties. My inquiries on this subject have induced me to believe, that it is worth the attention of country practitioners.

The table represents the plant as large as nature.



Fig. 1



Fig. 2

TABLE XCII.—FIG. 1.

SAROTHA HYPERICOIDES.

GROUND PINE.

Pentandria Trigynia, Linn.

Caryophyllææ.

GENERIC CHARACTER.

Calix 5-parted, connivent. *Petals* 5, linear-oblong. *Capsule* oblong, acute, coloured, 1-celled, 3-valved, margin of the valves seminiferous.

SYNONYMS.

SAROTHA hypericoides, Nutt. Gen. Am. pl. vol. i. p. 204.

S. gentianoides, Willd.

HYPERICUM sarottha, Mich.

H. nudicaule, Walt.

AN annual plant, varying in height from three to eight inches, very much branched, so as to form a dense cluster resembling a bunch of pine leaves, hence the common name, stem and branches four-sided. Leaves very minute, scale-like, erect, embracing the stem, opposite, obtuse. Root fibrous, stem simple, for about one or two inches from

the ground, and invested with minute scale-like leaves, like the branches. Flowers alternate, numerous, sessile, the inflorescence beginning below and proceeding upwards. Flowers small, yellow, the petals seldom expanded after mid-day sun. Time of flowering July and August. Common every where throughout the Union.

The figure is the size of nature.

TABLE XCII.—FIG 2.

MALAXIS OPHIOGLOSSIOIDES.

ADDER-TONGUE MALAXIS. ONE-LEAVED MALAXIS.

Gynandria Monogynia, Linn.

Orchideæ, Juss.

GENERIC CHARACTER.

Petals 5, narrower than the lip, spreading or deflected. *Lip* flattened, undivided, sessile, (mostly situate behind.) *Column* porrected. *Pollinia* 4, parallel, affixed to the summit of the stigma. *Nutt.*

SPECIFIC CHARACTER.

M. one leaf, ovate, amplexicaule; scape five-angular, lip bifid at the apex. *Willd.*

SYNONYM.

MALAXIS unifolia, Mich.

Root a double bulb, invested with a rugged sheath, and furnished with a few radicles from the lower part. **Stem** four or five-angled, erect, garnished with a foliaceous sheath near the root, and a single,

ovate, amplexicaule leaf, from the bosom of which the stem seems to emerge. Leaf glabrous and shining on both sides, finely reticulated—the reticulation very apparent when the leaf is old or dried. Spike long, crowded, a few flowers only expanding at a time. Flowers small, pedunculate, siskin-green; germ large after florescence. Grows in rich shady woods, near the roots of trees, in the same kind of soil in which the Orchidean plants generally delight. Not common. Flowering in July and August.

The figure represents the plant as large as life—specimens occasionally are found larger, with more flowers of the spike expanded, but many are much smaller, with only one or two flowers open.



Drawn from nature by H. B. K. Berlin

CRUCIATAE. ANTHUS. 189.

TABLE XCIII.

TRICHOSTEMA DICHOTOMA.

. BASTARD PENNYROYAL.

Diynamia Gymnospermia, Linn.

Labiata, Juss.

GENERIC CHARACTER.

Calix resupinate. Upper lip of the *corolla* falcate. *Stamina* very long and incurved.
Nutt.

SPECIFIC CHARACTER.

T. leaves rhomboid-lanceolate, the flower-bearing branchlets bi-furcate, stamens very long. *Willd. & Pursh.*

PLANT from eight to ten inches high, all over densely pubescent. Root annual, fibrous. Stem erect, cylindrical, branched above. Leaves numerous, opposite, oval-lanceolate, obtuse, attenuated at base, paler underneath than above, costa and veins conspicuous beneath. One or two pairs of small leaves arise from the axils of the larger ones, and those situated on the ends of the branches and near the flowers, likewise quite small. Flowers terminal, campanula-purple. Stamens also

purple, long, incurved in a circle from the upper down to the lower lip. Grows in sandy fields and road sides, throughout the Union, flowering in August.

The table represents the plant as large as nature.



From the Palace of the Emperor of Mexico

Bot. Soc. London

ADULT PLANT

TABLE XCIV.

MIMULUS ALATUS.

WING-STEMMED MONKEY FLOWER.

Didynamia Gymnospermia, Linn.

Scrophulariæ, Juss.

GENERIC CHARACTER.

Calix prismatic, 5-toothed. *Corolla* ringent; upper lip reflected at the side; palate of the lower lip prominent. *Stigma* thick and bifid. *Capsule* 2-celled, many-seeded. *Seeds* minute. *Nutt.*

SPECIFIC CHARACTER.

M. erect, glabrous; leaves petiolate, ovate-acuminate, serrate, peduncles axillary, opposite, shorter than the flower; teeth of the calix round, mucronate, stem four-angled, winged. *Willd.*

Root perennial; every part of the plant glabrous; stem erect, branched, from one to three feet high, smooth, four-sided, winged by a membranaceous margin. Leaves opposite, larger on the main stem, ovate-lanceolate, acuminate, serrate, petiolate; petioles slightly winged, costa and veins beneath very conspicuous, both sides smooth. Calix about three-fourths of an inch long, teeth rounded, acuminate.

a rib running down from the point to the base. Peduncles scarce exceeding an eighth of an inch or a quarter of an inch long, situated in the axils of the leaves. Flowers numerous and showy. Corolla campanula-purple. Grows along the banks of meadows, drains, and rivulets, delighting in shady and boggy soil—flowering in August.

This and *M. ringens* resemble each other so nearly, as to be easily confounded together. A decided specific difference however, exists in the petiolated leaves and nearly sessile flowers in the present species, contrasted with the sessile leaves and long pedunculate flowers of the *M. ringens*; besides this, the stem is not winged in the latter.

The table represents a portion of the plant as large as nature.



TABLE XCV.—FIG. 1.

MITCHELLA REPENS.

CREEPING MITCHELLA. PARTRIDGE-BERRY. CHEQUER-BERRY.

Tetrandria Monogynia, Linn.

Rubiaceæ, Juss.

GENERIC CHARACTER.

Flowers by pairs upon the same germ, superior. *Calix* 4-toothed. *Corolla* funnel-form, tube cylindric. *Limb* 4-parted, spreading, villous on the inner side. *Stamina* 4, scarcely exserted. *Stigma* 4-cleft. *Berry* by the union of two germs, didymous, 4-seeded.

AN humble but beautiful evergreen plant. Roots perennial. Stems fruticose, creeping, tortuous. Leaves very numerous, orbicular, varying in size from a quarter to half an inch in diameter—situated by pairs on petioles as long as their diameter. Petioles opposite. Flowers in pairs, terminal, white, pubescent within. Berry, or enlarged calix, of a bright scarlet. Grows in great abundance where found, covering several feet of ground like a mat, with its evergreen verdure. On rocks and in shady woods of rich soil—delighting in shade, and seldom found where the sun penetrates. Flowers in May and June.

This plant is slightly diuretic, and is used in Jersey in calculous affections, but is not, I think, entitled to any notice on account of its medicinal virtues.

The figure represents the plant the size of nature—*a.* in flower, *b.* in fruit.

TABLE XCV.—FIG. 2.

POLYGONUM LINIFOLIUM.

FLAX-LEAVED POLYGONUM.

GENERIC CHARACTER.

Calix 5-parted, petaloid, persistent. *Seed* 1, superior, 3-sided, covered by the connivent calix. (The number of the styles and stamina uncertain.)

SPECIFIC CHARACTER.

Very much branched; stems and branches angular-flexuose; leaves linear, channelled, short above, somewhat subulate, all very upright, rigid, sub-mucronate, sessile; flowers axillary, remote, alternate, solitary.—Bart. Prod. Fl. Ph. p. 48.

SYNONYMS.

P. tenue, Michaux?

P. barbatum, Walt.?

A SMALL and inconspicuous annual plant, scarcely exceeding a span in height. Very much branched. Leaves linear, erect, somewhat channelled, acuminate, rigid. Flowers small, not conspicuous, and rarely

expanded. Grows on sandy heaths and the borders of sandy woods, flowering in July.

The figure represents the plant as large as nature.

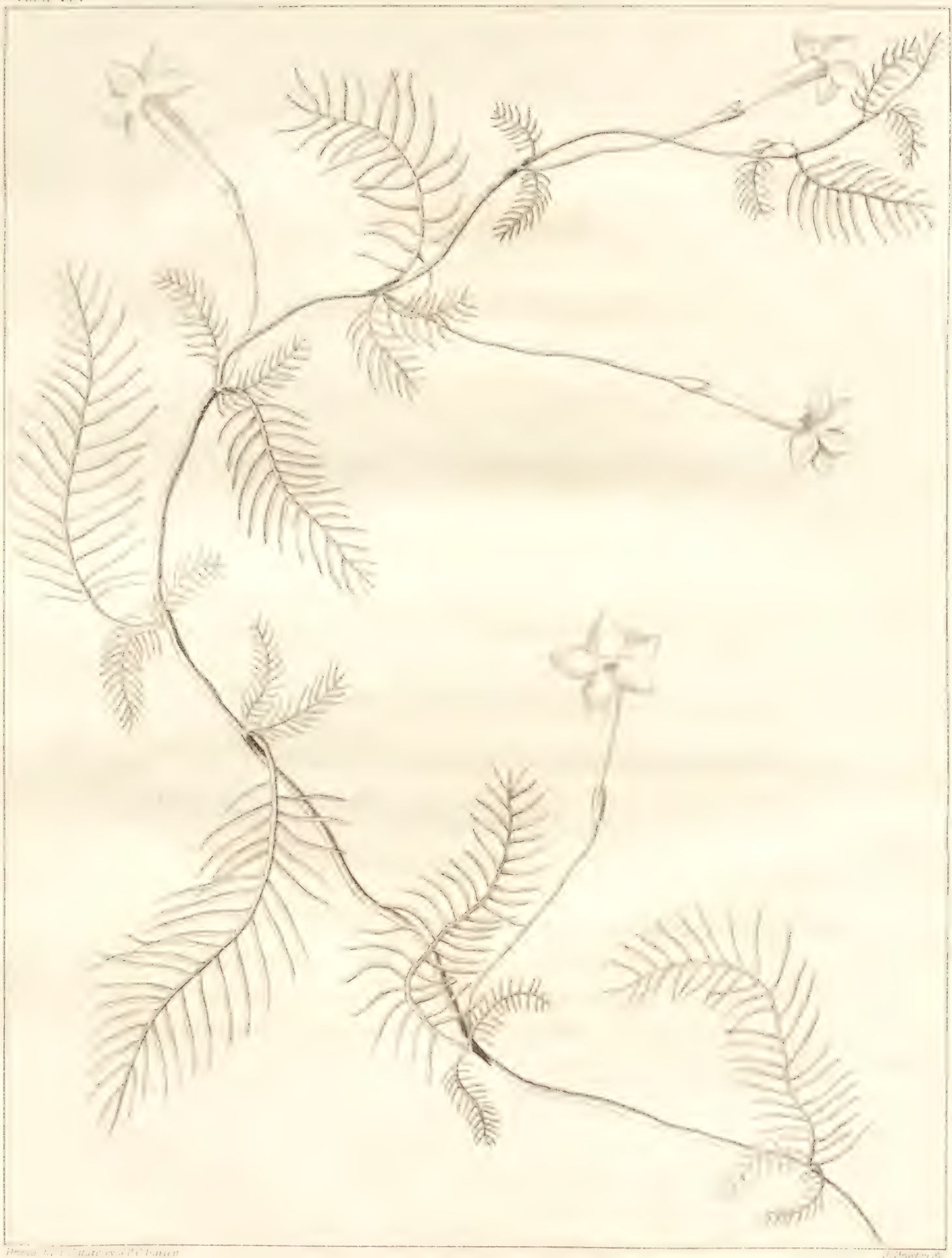


TABLE XCVI.

IPOMŒA QUAMOCLIT.

QUAMOCLIT.

Pentandria Monogynia, Linn.

Convolvuli, Juss.

GENERIC CHARACTER.

Calix 5-cleft. *Corolla* funnel-form or campanulate, 5-plaited. *Stigma* capitate, globose.
Capsule 2 or 3-celled, many-seeded.

SPECIFIC CHARACTER.

Leaves pennate, pinnatifid, segments linear, flowers bright crimson, capsule ovate, 2-seeded? seeds sub-cylindric-oblong.

THIS beautiful and favourite vine is indigenous to the hotter parts of North America. It attains the height even in cultivation in pots and common gardens, of ten or fifteen feet, and with care is readily made to attain a stature many feet higher. Its foliage is late appearing, and rather slow in its first growth—after midsummer, however, the vine quickly creeps up the threads and other supports prepared for it.

and by the end of summer and beginning of autumn, presents a very superb assemblage of crimson flowers, forming an unusually elegant contrast with the delicate penniform foliage. The roots are annual, and it is therefore necessary to sow the seeds every spring for new plants.

The table represents a twining specimen as large as nature.



TABLE XCVII.

GERARDIA PURPUREA.

PURPLE GERARDIA.

Didynamia Gymnospermia, Linn.

Scrophularia, Juss.

GENERIC CHARACTER.

Calix half 5-cleft, or 5-toothed. *Corolla* sub-campanulate, unequally 5-lobed, segments mostly rounded. *Capsule* 2-celled, opening at the summit.

SPECIFIC CHARACTER.

Stem very much branched, leaves opposite, linear; flowers axillary, opposite, sessile. *Willd. and Pursh.*

A BIENNIAL plant from fifteen to eighteen inches high, often two feet, in rich wet soils. Leaves thick, linear, about an inch or an inch and a quarter long. Flowers large, very handsome purple. Grows along the shores of our rivers and creeks and other water-courses in great abundance, being one of the gayest of their ornaments in the autumn. This plant and the *S. tenuifolia* nearly resemble each other

in habit—they however are characterised by striking differences. The *tenuifolia* is a more slender and delicate plant, with much smaller and less high-coloured flowers, situated on long filiform peduncles. The flowers of the present species are nearly sessile, and very large and showy—this plant delights in wet soil, and the *tenuifolia* in arid woods.

The table represents *G. purpurea* of the size of nature.



Fig. 1.

Fig. 2.

Stachys recta

Stachys recta L.

TABLE XCVIII.—FIG. 1.

RUDBECKIA FULGIDA, var. β .

GENERIC CHARACTER.

Calix sub-equal, mostly consisting of a double series of leaflets. *Receptacle* paleaceous, conic. *Pappus* a 4-toothed margin.

PLANT scabrous, about two or two and a half feet high. Stem erect, striated, leaves amplexicaule, covered with hairs and pits above and below, obscurely and distinctly serrated, and closely ciliated. Costa whitish, veins pellucid. Petals of a fine bright yellow colour towards the apex—towards the centre or base, of a deep orange hue. In the general aspect of this plant brought by Mr. Nuttall from Arkansa, there is a striking discrepancy from the common *Rudbeckia fulgida*, of which a figure is given in the first volume of this work. The most conspicuous difference is in the discoloured petals of the present plant. The other is constantly found with petals of an uniform hue. A close examination, however, does not afford just data for specific separation—and hence I have merely figured it as a variety. Specimens have flowered in the garden of Mr. Harvey Elliot near this city, from seeds produced by the plants raised from those brought by Mr. Nuttall, and these specimens present the same character as the figure, which

was taken two years ago from specimens given me by Mr. Nuttall. The variety, therefore, if indeed it be no more, is a legitimate one.

The table represents the plant of the size of nature.

TABLE XCVIII.—FIG. 2.

PLANTAGO HYBRIDA.

SPURIOUS MARITIME PLANTAIN.

Tetrandria Monogynia, Linn.

Plantagineæ, Juss.

GENERIC CHARACTER.

Calix 4-cleft. *Corolla* 4-cleft, border reflected. *Stamina* mostly exserted, very long.

Capsule 2-celled, opening transversely.

SPECIFIC CHARACTER.

Leaves subulate-linear, entire, rigidly acute, shorter than the scape, not woolly at the base ; scape terete, slender, slightly pubescent ; spike long and slender, cylindrical, rather loose ; spikelets below remote ; bractæ acute. B. Com. Fl. Ph. addenda, p. 214, vol. 2.

SYNONYM.

PLANTAGO maritima, Bart. Prod. Fl. Ph.

“Root annual. Plant from two to three inches high. Leaves very numerous, about one inch long in mature specimens, often not ex-

ceeding half an inch, destitute of every thing like woolliness at the base. Scape slender, longer than the leaves, round and slightly pubescent under a lens. Spike cylindrical, not exceeding one-eighth of an inch in diameter, from half an inch to two inches long, and of a green and sienna-colour, not deep brown or blackish as in the European and American specimens of *P. maritima*. Scapes nearly as numerous as the leaves. This species, which is decidedly distinct from *P. maritima*, I found four years, (now nine years) ago, in the exsicated canal on the road to Lemon hill, close to the high gravel banks. I there found it two years in succession, and on transplanting it into my garden it produced seeds which came up the succeeding spring. The mature specimens preserved the characters of the plant as given above." *Comp. Fl. Ph.* as above quoted.

It is now five years since I published the above account, and during this time I have three or four seasons, met with specimens of the above species, in different parts of our neighbourhood. They differed in no respect from the above described plants. I have made a careful comparison of the hybrida, (as I have designated the present species,) with the European and American species, and from both the hybrida is strikingly and specifically distinct. Flowers in April and May, preferring cold and tenacious soil in the vicinity of pools.

The figure represents the plant about the common size.



TABLE XCIX.

GONOLOBUS OBLIQUUS.

HAIRY GONOLOBUS.

Pentandria Dyginia, Linn.

Apocynææ, Juss.

GENERIC CHARACTER.

Corolla rotate, 5-parted. *Nectary* simple, cylindric, sub-carnose, 5-lobed, depressed, exactly equal with the antheroid cells, discoid, pentangular, without alated lateral margins, or terminal membranaceous cusps. Masses of pollen 5-pair, even, transverse. *Follicles* 2. *Seed* carnose.—*Nutt.*

SPECIFIC CHARACTER.

Stem twining, hirsute; leaves ovate-cordate, acute; corymbs axillary; segments of the corolla ovate-acuminate.

SYNONYMS.

GONOLOBUS obliquus, Muhl.

CYNANCHIUM obliquum, Sp. pl. 1. p. 1256.

A TWIXING perennial plant, growing to the height of five or eight feet, supporting itself on the surrounding shrubbery, or trailing on the ground. The stem is perfectly cylindrical, and beset with long, transverse, soft hairs, petioles and peduncles also very hairy. Leaves varying in size. Those situated towards the root very large, and nearly round and cordate at base, often from five to six or seven inches in diameter. Those of the middle and upper part, cordate and semi-acuminate. The costa, nerves, and veins of the under side of all the leaves, invested with the same soft, but shorter, sienna-coloured pubescence as the stem, which gives to the under disks a sericeous feel. Flowers somewhat umbellate, situated on divaricating peduncles of various lengths from one-fourth to three-fourths of an inch in length. Segments of the calix acuminate, pubescent. Petals linear and lanceolate-linear, occasionally very narrow and long, often the breadth and length represented in the plate. Colour, auricula-purple. Pod, muricate, with soft spines of a dull brown colour. Grows throughout the union, near damp thickets, flowering in July.

The table represents the plant as large as nature.



Drawn from Nature by W. P. Barton.

Engraved by C. T. Houston.

POLYGONUM ARIFOLIUM.

TABLE C.

POLYGONUM ARIFOLIUM.

HALBERT-LEAVED TEAR-THUMB.

Octandria Trigynia, Linn.

Polygonæ, Juss.

GENERIC CHARACTER.

Calix 5-parted, petaloid, persistent. *Seed* 1, superior, 3-sided, covered by the connivent calix. (The number of the styles and stamina uncertain.)

SPECIFIC CHARACTER.

Flowers distinct, hexandrous, with the style 2-cleft; spikes few-flowered; stem retrorsely aculeate; leaves hastate. *Mich.*

A DEBILE annual plant, attaining in favourable situations a height of three or four feet, rarely five. Stem carmine-red, four-sided, beset on the angles with rigid prickles, presenting from above downward or backward, so as to tear the fingers when any attempt is made to take hold of it, hence the common name. Leaves varying in size, being from four to five inches long on the lower part, and decreasing

till they are only an inch or half an inch in length. They are triangular, hastate, acuminate, with all the angles very long and sharp, and the texture of the leaf itself roughish, being invested with hispid pubescence, particularly abundant on the costa and nerves of the under disk. Branches bright red, very slender and often filiform. Ocheæ stipulaceous, and of a red colour. Flowers globose, except when expanded, which is only for a short time in early morning and after heavy rains. Petals white, tinged with rose-red.

Grows throughout the union, in meadows and watery thickets, and on the borders of drains in low grounds of damp soil. delighting in moisture—in very favourable situations is not destitute of beauty. Flowers in August and September.

The plate represents the plant as large as nature.



Drawn from Nature by W.P. Weston

Engraved by C. T. Johnston

POLYCONUM SAGITTATUM.

TABLE CI.

POLYGONUM SAGITTATUM.

ARROW-LEAVED TEAR-THUMB.

Octandria Trigynia, Linn.

Polygonæ, Juss.

GENERIC CHARACTER.

Calix 5-parted, petaloid, persistent. *Seed* 1, superior, 3-sided, covered by the connivent calix. (The number of the styles and stamina uncertain.)

SPECIFIC CHARACTER.

Flowers in heads, octandrous, with the style 3-cleft; stem retrorsely aculeate; leaves sagittate. *Mich.*

A WEAK decumbent annual plant, supporting itself by clinging to other plants. Stem green, four-sided, beset backward with prickles, not so rigid as those of the preceding species, but injuring the fingers in the same manner if handled. Leaves shaped like the head of an arrow, with the margins curved in an arch from the apex to the base of the auricles. Flowers white, in clusters. Petals white, tinged with

rose-red, and rarely continuing an hour or two expanded. Grows with the preceding species, and flowers at the same time.

A polymorphous genus, containing twenty-three North American species, nearly all of which are herbaceous. It is divided into two sections. First, hairy ochreæ, many-flowered, (3-5,) which comprises twenty species—the second, called *Polygonella*—having these characters. Calix five-leaved, ochreæ one-flowered; racemes dichotomously paniculate; leaves spatulate, small, (flowers often dioicous,) stamens eight, stigmas three, sub-capitate.

The table represents the plant the size of nature.



Verbena stricta (L.) Mill.

TABLE CII.

EUPATORIUM MACULATUM.

SPOTTED-STEMMED HEMPWEED. BITTER EUPATORIUM.

Syngenesia Æqualis, Linn.

Corymbiferæ, Juss.

GENERIC CHARACTER.

Calix simple or imbricate, oblong. *Style* long and semi-bifid. *Receptacle* naked. *Pappus* pilose, or more commonly scabrous. *Seed* smooth and glandular, quinquestriate. *Nutt.*

SPECIFIC CHARACTER.

Leaves petiolate, in four's or five's, ovate-lanceolate, unequally serrate, pubescent beneath; stem solid, furrowed. *Willd.*

PLANT from two feet to two and an half, and sometimes three feet high. Root perennial. Stem erect, terete, of a lake-red colour, spotted with long specks of the same hue, but darker, and occasionally of a greenish cast. Leaves in three's, four's, and five's in a whorl.

Whorls about four or five inches apart. The leaves decrease in size as they approach the top of the stem, where the corymb commences. They are oval or broad-lanceolate, serrate, acuminate, somewhat bullated or blistered. Veins very numerous and net-like, of a purplish-red colour, and quite prominent on the under disk, and considerably, though less so on the upper. Serratures occasionally very deep and large, particularly on the longer leaves. Corymb fastigiate and dense, general and partial peduncles, flowers, stamens, and calices, being all of the same red hue. Grows along the borders of meadow-drains and rivulets in great abundance, flowering in August and September.

The whole plant is intensely bitter, so that the fingers in collecting it become intolerably so to the taste. By this property, and its deeper red colour and lower stature, it may readily be distinguished from all the other red flowering species of *Eupatorium*. A cold infusion of the whole plant, including stems, affords one of the most grateful aromatic, and intense bitters I have ever met with—two drachms being sufficient to impregnate a pint of cold water with a sufficient bitterness to be tolerated by the stomach. Hot water takes the bitterness more quickly, but not more certainly. As a subsidiary remedy in the treatment of all cases of disease which require tonics, and particularly the bark and other bitter roborants, it has been, in my own extensive practice with it, highly useful. I discovered the medicinal virtues of this plant several years ago, and recommended it to my bro-

ther practitioners in this city, several of whom are greatly attached to the use of it.* I also employed it daily, during an attendance of six months in the Philadelphia Alms-House Infirmary, where I introduced it. After that time it was continued in constant use by the resident pupils, who had seen so much good effects from it.

The table represents the plant the size of nature, though I have been obliged to select a small specimen to come within my limits. The corymb is frequently eight or ten inches in diameter, and the leaves six or seven inches long.

* Those who have used it most extensively, and aided me in making it known, are Dr. Hewson, Dr. Colhoun, Dr. Eberle, and Dr. M'Clellan.

TABLE CIII.

PENSTEMON PUBESCENS.

Didynamia Gymnospermia, Linn.

Scrophulariæ, Juss.

GENERIC CHARACTER.

Calix 5-leaved. *Corolla* bilabiate, ventricose. The *fifth* sterile filament longer than the rest, and bearded on the upper side. *Anthers* smooth. *Capsule* ovate, 2-celled, 2-valved. *Seeds* numerous, angular.

SPECIFIC CHARACTER.

Stem pubescent, leaves serrulate, lanceolate-oblong, sessile; flower paniculate, sterile filament bearded from the apex as far as below the middle. *Willd.* & *Pursh.*

SYNONYM.

CHELONE penstemon, Mart. 415.

PLANT from ten to fifteen inches high. Stem purple, erect, tortuous, pubescent, and cylindrical. Leaves erect, opposite, sessile, broad at base, lanceolate, acute, or with an obtuse point, very finely marked



Penstemon digitalis L.

by repand denticulations or rather serratures near one-eighth of an inch apart. Upper portion of the stem branching into a kind of panicle, supporting from fifteen to thirty showy pale-blue flowers. Corolla labiate or rather personate, orifice of lower lip pubescent. Seed-vessel glabrous, conical, crowned by the persistent style, and containing numerous minute seeds. Grows on the borders of open woods and fields throughout the Union, common. Perennial, flowering in July.

A North American genus, to which the labours of Pursh and Nuttall have added many new and beautiful species. The chief part of these are natives of the plains of Missouri and about Teton river—on the Arikarees and near Shian river—also near the Prairie du Chien, Mississippi. The only species which grows hereabout, is the one now figured. They are all herbaceous and perennial plants, and rarely shrubby or suffructicose.

The table represents the flowering half of the plant, as large as nature.



TABLE CIV.

ASTER LINARIIFOLIUS.

SAVOURY-LEAVED STAR-WORT.

Polygamia Superflua, Linn.

Corymbiferæ, Juss.

GENERIC CHARACTER.

Calix imbricated, the lower scales partly foliaceous, and often spreading. *Radical* florets generally more than 10, rarely fewer, violaceous or white. *Receptacle* naked. *Pappus* simple, pilose.

SPECIFIC CHARACTER.

Leaves linear, mucronate, without nerves and without dots, carinated, rough and stiff; branches recurved; stem sub-decumbent; branches fastigate, 1-flowered; calices imbricate, the length of the disk. *Willd., Ait. and Pursh.*

Root perennial. Plant about one foot or fourteen inches high. Stem suffruticose, erect, of a pale purplish colour. Leaves all of a greyish-green, erect, very stiff, the under disk generally most conspicuous by reason of their erectness. Apex terminating in a sharp stiff

point. Branches beginning near the top, very numerous. Leaves very small, sharp-pointed, close together, and also very erect, often concealing the branches entirely. Ray flowers of a pale campanula-purple. Disk florets yellow. Pappus abundant. Grows on dry sandy soils, on the edges of woods, throughout the Union, flowering in October.

This very beautiful species of the numerous genus *Aster* I have here figured that a doubt may be removed whether it be the *A. linariifolius* of Michaux.

The table represents the upper portion of the size of nature.



TABLE CV.

HELIANTHUS ANGUSTIFOLIUS.

NARROW-LEAVED SUN-FLOWER.

Polygamia Frustanea, Linn.

Corymbiferæ, Juss.

GENERIC CHARACTER.

Calix imbricated, subsquarrose, foliaceous. *Receptacle* paleaceous, flat. *Pappus* paleaceous, 2-leaved, caducous.

SPECIFIC CHARACTER.

Stems weak, slender, sub-one-flowered; leaves linear, margin revolute, rough.
Willd. Sp. pl. p. 2244.

Root perennial. Stem from two to three feet high, irregular and undulating, cylindrical and very smooth and shining. Leaves by pairs, opposite below, alternate above, very scabrous on the upper disk and margins, each pair very remote from the next, often on the lower part of the stem, six or seven inches asunder. They are linear and very

long below, and shorter above, varying from seven inches to ten in length, and about a quarter of an inch to three-eighths wide, without nerves, the costa only being conspicuous on the under disk. They are smooth and even glabrous underneath, acute, closely sessile. Top of the stem usually divided into one or more forks, supporting at a considerable distance from a leaf or two, occasionally found on the bifurcating branches, each a single, terminal, pale, straw-yellow flower, consisting for the most part of eight linear, acute, rarely ovate petals. Calix leaves very numerous. Disk deep brown purple, rays yellow.

Grows in dry woods from Maryland southward, flowering in September.

The table represents Fig. 1, the upper portion of the plant the size of nature—Fig. 2, a leaf from the lower part of the stem.



Drawn from Nature by R. P. C. Bates.

Engd. by G. B. Ellis.

REPRODUCED FROM PART II

TABLE CVI.

HYPERICUM BONAPARTEÆ.

PRINCESS CHARLOTTE'S HYPERICUM.

Polyandria Di-pentagynia, Linn.

Hyperica, Juss.

GENERIC CHARACTER.

Calix 5-parted, segments equal. *Petals* 5. *Stamina* numerous, scarcely united at the base. *Capsule* roundish; cells equal with the number of the styles; 1, 2, 3, and 5.

SPECIFIC CHARACTER.

Stem erect, ancipital immediately below each pair of leaves, roundish towards the root. Leaves opposite, closely sessile, lanceolate-obtuse, finely punctuated with pellucid dots; leaves of the branches numerous, crowded, sub-linear, obtuse. *Cymes* crowded with small acute leaves; flowers terminal and axillary, monogynous, petals obtuse, entire. Capsules sub-conoid—*B. Comp. Fl. Ph.*

SYNONYM.

HYPERICUM, No. 6. Bart. Prod. Fl. Ph. p. 74.

I HAVE dedicated this species of St. John's Wort, to Princess Charlotte, now Countess de Surveilliers, in testimony of my personal respect for her, and my veneration for her name.

"A very elegant plant, from one to two and a half feet high. The branches are divaricating, slender, appressed, and frequently inflexed or curved downward, and crowded with numerous leaves, much narrower than the stem leaves, less obtuse, and even inclining to acute. From the axills of the stem leaves proceeds a cluster of five or six sub-linear, obtuse leaves, which appear to arise from abortive branches. The flowers are yellow, about the size of those of *H. corymbosum*. I discovered this new species about four, (now nine) years since, in a rich, wet or swampy meadow, on the lower edge of Lansdowne's grounds, close to the Schuylkill, not far above Beck's island. It there grows in profusion, but I have not found it elsewhere. It stands in my *Prodromus*, No. 6, without a name, not being certain at the time I published that work, that it was undescribed." Barton's *Comp. Fl. Ph.* Vol. II. p. 15.

The figure represents the plant the size of nature.

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